CLAIMS

What is claimed is:

1. A pharmaceutical preparation for inhibiting herpes simplex virus type-1 (HSV-1) infection in a mammal comprising a substantially pure polysaccharide preparation enriched for 3-O-sulfated glucosamine residues.

2. The pharmaceutical preparation of claim 1, wherein said polysaccharide preparation is enriched for GlcN3S6S residues.

3. The pharmaceutical preparation of claims 1 or 2, comprising a polysaccharide preparation enriched for polysaccharide structures capable of specific binding with HSV-1 gD viral glycoprotein.

4. The pharmaceutical preparation of claim 3, wherein said polysaccharide preparation enriched for polysaccharide structures capable of specific binding with HSV-1 gD viral glycoprotein has a binding affinity of less than 30 μM for gD.

5. The pharmaceutical preparation of claim 3, wherein said polysaccharide preparation enriched for polysaccharide structures capable of specific binding with HSV-1 gD viral glycoprotein has a binding affinity of less than 20 μM for gD.

6. The pharmaceutical preparation of claim 3, wherein said polysaccharide preparation enriched for polysaccharide structures capable of specific binding with HSV-1 gD viral glycoprotein has a binding affinity of less than 10 μM for gD.

7. The pharmaceutical preparation of claim 3, wherein said polysaccharide preparation enriched for polysaccharide structures capable of specific binding with HSV-1 gD viral glycoprotein has a binding affinity of 2 μM for gD.

8. The pharmaceutical preparation of claim 3, wherein said polysaccharide preparation enriched for polysaccharide structures capable of specific binding with HSV-1 gD viral glycoprotein has a binding affinity of about 2 μM to about 10 μM for gD.

9. A pharmaceutical preparation for inhibiting herpes simplex virus type-1 (HSV-1) infection in a mammal, comprising heparan sulfate that has been enriched for polysaccharide structures modified by a 3-OST-3 enzyme.

10. A pharmaceutical preparation as in claim 9, wherein said pharmaceutical preparation has been enriched by contacting said polysaccharide with 3-OST-3 enzyme in the presence of a sulfate donor, under conditions suitable for 3-O sulfation of said polysaccharide by 3-OST-3.

11. A pharmaceutical preparation as in claim 10 wherein the 3-OST-3 enzyme is selected from the group consisting of 3-OST-3A and 3-OST-3B.

12. The pharmaceutical preparation of claims 1-11, wherein the preparation comprises the disaccharide sequence -IdoA2S-GlcN3S6S.

13. The pharmaceutical preparation of claims 1-11 wherein the preparation comprises the trisaccharide sequence GlcNS-IdoA2S-GlcNH$_2$3S6S.

14. The pharmaceutical preparation of claims 1-11 wherein the preparation comprises the tetrasaccharide sequence UA2S-GlcNS-IdoA2S-GlcNH$_2$3S6S.

15. The pharmaceutical preparation of claims 1-11 wherein the preparation comprises the pentasaccharide sequence GlcNS6S-UA2S-GlcNS-IdoA2S-GlcNH$_2$3S6S.

16. The pharmaceutical preparation of claims 1-11 wherein the preparation comprises the hexasaccharide sequence UA-GlcNS6S-UA2S-GlcNS-IdoA2S-GlcNH$_2$3S6S.

17. The pharmaceutical preparation of claims 1-11 wherein the preparation comprises the hexasaccharide sequence UA-GlcNS6S-UA2S-GlcNS-IdoA2S-GlcNH$_2$3S6S.

18. The pharmaceutical preparation of claims 1-11 wherein the preparation comprises the heptasaccharide sequence GlcNAc-UA-GlcNS6S-UA2S-GlcNS-IdoA2S-GlcNH$_2$3S6S.

19. The pharmaceutical preparation of claims 1-11 wherein the preparation comprises the octasaccharide sequence UA-GlcNAc-UA-GlcNS6S-UA2S-GlcNS-IdoA2S-GlcNH$_2$3S6S.

20. The pharmaceutical preparation of claims 1-19, wherein said pharmaceutical preparation comprises pharmaceutically acceptable carrier selected from the group consisting of lotions, creams, jellies, liniments, ointments, salves, oils, foams, gels, washes, suppositories, slow-releasing polymers, and coatings.

21. The pharmaceutical preparation of claims 1-20, wherein said pharmaceutical preparation further comprises at least one skin penetrating enhancer.

22. The pharmaceutical preparation of claim 1-21, wherein said skin penetrating enhancer is selected from the group consisting of dimethylsulfoxide (DMSO), propylene glycol, isopropanol, ethanol, oleic acid, and N-methylpyrrolidone.

23. A method of inhibiting herpes simplex virus type-1 (HSV-1) viral infection in mammal comprising administering a therapeutically effective amount of any one of the pharmaceutical preparations of claims 1-22 to a mammal at risk of HSV-1 infection.

24. A method of inhibiting herpes simplex virus type-1 (HSV-1) viral infection in mammal comprising administering a therapeutically effective amount of any one of the pharmaceutical preparations of claims 1-22 to a mammal diagnosed with HSV-1 infection.